

**IN THE CLAIMS**

Claims 1 to 62 (Cancelled).

63. (New) A process for characterizing DNA comprising a step of isolating nucleic acids, wherein the step of isolating comprises the steps of:
- a. contacting a biological material that contains DNA with a solid support treated with a lysing reagent and a RNA digesting enzyme, wherein the solid support is free of a biological material at the time of treatment with the lysing reagent and RNA digesting enzyme, wherein the lysing reagent is used in an amount suitable to cause lysis of the biological material to release DNA from the biological material;
  - b. treating the biological material that contains DNA with a DNA purifying reagent;
  - c. purifying the DNA from the remainder of the biological material; and
  - d. analyzing the purified DNA.
64. (New) A process for characterizing DNA comprising a step of isolating nucleic acids, wherein the step of isolating comprises the steps of:
- a. contacting a biological material that contains DNA with a solid support treated with a lysing reagent comprising a RNA digesting enzyme, wherein the solid support is free of a biological material at the time of treatment with the lysing reagent, wherein the lysing reagent is used in an amount suitable to cause lysis of the biological material to release DNA from the biological material;
  - b. treating the biological material that contains DNA with a DNA purifying reagent;
  - c. purifying the DNA from the remainder of the biological material; and
  - d. analyzing the purified DNA.

65. (New) A process for characterizing DNA comprising a step of isolating nucleic acids, wherein the step of isolating comprises the steps of:
- a. contacting a biological material that contains DNA with a solid support treated with a lysing reagent and a RNA digesting enzyme, wherein the solid support is free of a biological material at the time of treatment with the lysing reagent and RNA digesting enzyme, wherein the lysing reagent is bound to the solid support in an amount suitable to cause lysis of biological material to release DNA from the biological material and binding of said DNA to the solid support, and the RNA digesting enzyme is bound to the solid support, wherein any unbound lysing reagent and unbound RNA digesting enzyme is removed from the solid support before the biological material is contacted with the solid support.;
  - b. treating the biological material that contains DNA with a DNA purifying reagent;
  - c. purifying the DNA from the remainder of the biological material; and
  - d. analyzing the purified DNA.
66. (New) A process for characterizing DNA comprising a step of isolating nucleic acids, wherein the step of isolating comprises the steps of:
- a. contacting a biological material that contains DNA with a solid support treated with a lysing reagent comprising a RNA digesting enzyme, wherein the solid support is free of a biological material at the time of treatment with the lysing reagent, wherein the lysing reagent is bound to the solid support in an amount suitable to cause lysis of biological material to release DNA from the biological material and binding of said DNA to the solid support, wherein any unbound lysing reagent is removed from the solid support before the biological material is contacted with the solid support;
  - b. treating the biological material that contains DNA with a DNA purifying reagent;

- c. purifying the DNA from the remainder of the biological material; and
  - d. analyzing the purified DNA.
67. (New) The process for characterizing DNA of claims 63 to 66, wherein the RNA digesting enzyme is RNase.
68. (New) The process for characterizing DNA of claims 63 to 66, further comprising a step of applying a DNA eluting reagent to the solid support, wherein the DNA eluting reagent comprises:
- (i) a buffer;
  - (ii) a base;
  - (iii) a chelating agent; and
  - (iv) water.
69. (New) The process of claims 63 to 66, wherein the solid support is contained in a vessel, wherein the vessel is selected from a group consisting of centrifuge tubes, spin tubes, syringes, cartridges, chambers, multiple-well plates, test tubes, and combinations thereof.
70. (New) The process according to claims 63 to 66, comprising the further step of heating the solid support to greater than 60°C.
71. (New) The method of claims 63 to 66, wherein the biological material is selected from the group consisting of eukaryotic cells, prokaryotic cells, microbial cells, bacterial cells, plant cells, mycoplasma, protozoa, fungi, viruses, and lysates and homogenates thereof.

- 72. (New) The method of claims 63 to 66, wherein the biological material is selected from the group consisting of body fluids, body waste products, excretions, and tissues.
- 73. (New) The method of claims 63 to 66, wherein the biological material is an environmental sample taken from air, water, sediment or soil.
- 74. (New) The process according to claim 71, further comprising the step of counting eukaryotic cells when the biological material is eukaryotic cells.
- 75. (New) The process according to claim 71, further comprising the step of counting prokaryotic cells when the biological material is prokaryotic cells.
- 76. (New) The process according to claim 71, further comprising the step of counting viruses when the biological material is viruses.
- 77. (New) The process according to claims 63 to 66, wherein the isolating step further comprises the step of analyzing the remainder of the lysate.
- 78. (New) The process according to claims 63 to 66, wherein the isolating step further comprises the step of analyzing the remainder of the biological material.
- 79. (Currently Amended) The process according to claim 77, wherein the analyzing step further comprises the step of monitoring impurities.
- 80. (New) The process according to claims 63 to 66, further comprising the step of quantitating the purified DNA.

81. (New) The process according to claims 63 to 66, further comprising the step of adjusting the concentration of DNA.
82. (New) The process according to claims 63 to 66, further comprising the step of evaluating the purified DNA.
83. (New) The process according to claim 82, wherein the step of evaluating the purified DNA further comprises the step of determining the yield of purified DNA.
84. (New) The process according to claim 82, wherein the step of evaluating the purified DNA further comprises the step of determining the size of the purified DNA or fragments thereof.
85. (New) The process according to claim 82, wherein the step of evaluating the purified DNA further comprises a step of determining the purity of DNA.
86. (New) The process according to claim 82, wherein the step of evaluating the purified DNA further comprises a step of digesting the purified DNA with a restriction enzyme or other DNA modifying enzyme.
87. (New) The process according to claim 82, wherein the step of evaluating the purified DNA further comprises a step of analyzing the sequence of the purified DNA.
88. (New) The process according to claim 82, wherein the step of evaluating the purified DNA further comprises a step of conducting a hybridization analysis on the purified DNA.

89. (New) The process of claims 63 to 66, wherein the biological material is applied to the solid support without any prior treatment of the biological material.
90. (New) The process of claims 63 to 66, wherein the solid support is selected from the group consisting of cellulose, cellulose acetate, glass fiber, nitrocellulose, nylon, polyester, polyethersulfone, polyolefin, polyvinylidene fluoride, and combinations thereof.
91. (New) The process of claim 90, wherein the polyolefin is a mixture of low density polyethylene and polypropylene fibers.
92. (New) The process of claim 91, wherein the polyolefin is hydrophilic.
93. (New) The process of claim 91, wherein the polyolefin has a charge.
94. (New) The process of claims 63 to 66, wherein the lysing reagent comprises:  
a. a detergent effective to lyse the biological material sufficiently to release DNA;  
and  
b. water.
95. (New) The process of claims 63 to 66, wherein the lysing reagent comprises:  
a. a detergent effective to lyse the biological material sufficiently to release DNA;  
and  
b. water; but does not contain a buffer.
96. (New) The process of claims 63 to 66, wherein the lysing reagent comprises:  
a. a detergent effective to lyse the biological material sufficiently to release DNA;  
and  
b. water; but does not contain a chelating agent.

97. (New) The process of claims 63 to 66, wherein the lysing reagent comprises:
- (a) a detergent effective to lyse the biological material sufficiently to release DNA;
  - (b) a chelating agent to reduce damage to DNA; but does not contain a buffer.
98. (New) The process of claims 63 to 66, wherein the lysing reagent comprises:
- a. a detergent effective to lyse the biological material sufficiently to release DNA;
  - b. a buffer; but does not contain a chelating agent.
99. (New) The process of claim 68, wherein the DNA eluting reagent has a pH of at least about 10, and the combined concentration of buffer, base, and chelating agent is no greater than about 20 mM, based on the total volume of the DNA eluting reagent.
100. (New) The process of claim 68, wherein the DNA eluting reagent has a pH of at least about 9, and the combined concentration of buffer, base, and chelating agent is no greater than about 20 mM, based on the total volume of the DNA eluting reagent.
101. (New) The process according to claims 63 to 66, further comprising a step of amplifying the purified DNA, wherein the purified DNA is applied to an amplification system to create amplified DNA.
102. (New) The process of claim 101, wherein the amplification system comprises buffer, primers, deoxyribonucleotides, a thermostable DNA polymerase, and a programmable heating element.

103. (New) The process of claims 101, further comprising the step of quantitating the amplified DNA.
104. (New) The process of claims 101, further comprising the step of evaluating the amplified DNA.
105. (New) The process of claim 104, wherein the step of evaluating the amplified DNA further comprises a step of determining the size of the amplified DNA.
106. (New) The process of claim 104, wherein the step of evaluating the amplified DNA further comprises a step of digesting the amplified DNA with a restriction enzyme.
107. (New) The process according to claim 104, wherein the step of evaluating the amplified DNA further comprises a step of sequencing the amplified DNA.
108. (New) The process according to claim 104, wherein the step of evaluating the amplified DNA further comprises a step of analyzing the sequence of the amplified DNA.
109. (New) The process according to claim 104, wherein the step of evaluating the amplified DNA further comprises the step of conducting a hybridization analysis on the amplified DNA.